

**Five-Year Review Report
Cornell-Dubilier Electronics Superfund Site
South Plainfield, Middlesex County, New Jersey**



**Prepared By:
United States Environmental Protection Agency
Region 2
New York, New York**

November 2011

Executive Summary

This is the first five-year review for the Cornell-Dubilier Electronics (CDE) Superfund site. The CDE site is located in Borough of South Plainfield, Middlesex County, New Jersey.

The CDE site is being addressed in four remedial phases or Operable Units (OUs). In September 2003, EPA issued a Record of Decision (ROD) selecting a remedy for OU1, which addresses contaminated soils and indoor dust at residential, municipal, and commercial properties in the vicinity of the CDE site. In September of 2004, EPA issued a ROD for OU2, which addresses the remediation of the former CDE facility, including contaminated soils and buildings. EPA is also completing a remedial investigation and feasibility study (RI/FS) for OU3, which addresses groundwater, and for OU4, which addresses the surface water and sediments of the Bound Brook, a stream that runs adjacent to the CDE site that has been adversely affected by the site. The OU1 and OU2 remedies are currently being implemented. An OU3 remedy is planned for 2012, and an OU4 remedy is expected in 2013.

This five-year review is a statutory review since the alternative selected in the OU2 ROD leaves contaminants on the CDE site that will not allow unrestricted use and unlimited exposure. The triggering action for this statutory review is the date of construction start for the OU2 remedy in November 2006.

The remedy at OU1 is expected to be protective of human health and the environment upon completion, and in the interim, exposure pathways that could result in unacceptable risks are being controlled.

The remedy at OU2 is expected to be protective of human health and the environment upon completion, and in the interim, exposure pathways that could result in unacceptable risks are being controlled.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name (<i>from WasteLAN</i>): Cornell-Dubilier Electronics, Inc. Site		
EPA ID (<i>from WasteLAN</i>): NJD981557879		
Region: 2	State: NJ	City/County: South Plainfield/Middlesex
SITE STATUS		
NPL status: <input checked="" type="checkbox"/> Final <input type="checkbox"/> Deleted <input type="checkbox"/> Other (specify)		
Remediation status (choose all that apply): <input checked="" type="checkbox"/> Under Construction <input type="checkbox"/> Constructed <input type="checkbox"/> Operating		
Multiple OUs?* <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Construction completion date: N/A	
Has site been put into reuse? <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A		
REVIEW STATUS		
Lead agency: <input checked="" type="checkbox"/> EPA <input type="checkbox"/> State <input type="checkbox"/> Tribe <input type="checkbox"/> Other Federal Agency		
Author name: Diego Garcia		
Author title: Remedial Project Manager	Author affiliation: EPA	
Review period:** 11/28/2006 to 11/28/2011		
Date(s) of site inspection: 9/28/2011		
Type of review: <input checked="" type="checkbox"/> Post-SARA <input type="checkbox"/> Pre-SARA <input type="checkbox"/> NPL-Removal only <input type="checkbox"/> Non-NPL Remedial Action Site <input type="checkbox"/> NPL State/Tribe-lead <input type="checkbox"/> Policy <input type="checkbox"/> Regional Discretion		
Review number: <input checked="" type="checkbox"/> 1 (first) <input type="checkbox"/> 2 (second) <input type="checkbox"/> 3 (third) <input type="checkbox"/> Other (specify)		
Triggering action: <input checked="" type="checkbox"/> Actual RA Onsite Construction at OU # <u>2</u> <input type="checkbox"/> Actual RA Start at OU# _____ <input type="checkbox"/> Construction Completion <input type="checkbox"/> Previous Five-Year Review Report <input type="checkbox"/> Other (specify)		
Triggering action date (<i>from WasteLAN</i>): 11/28/2006 (OU2 Construction Start)		
Does the report include recommendation(s) and follow-up action(s)? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no		
Is the remedy protective of the environment? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no		

* ["OU" refers to operable unit.]

** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form (continued)

Issues

A deed notice for restricted use of the property identified in the OU2 ROD has yet to be implemented and will need to be addressed at the completion of the remedy.

Recommendations and Follow-up Actions

The deed notice requirement as part of OU2 ROD should be addressed by EPA after completion of the OU2 remedy.

Other Comments on Operation, Maintenance, Monitoring, and Institutional Controls

The OU1 properties will be cleaned up for unrestricted use and will not require operation, maintenance, monitoring or institutional controls.

Once the OU2 remedy is complete, EPA will conduct routine operation, maintenance and monitoring activities at the site and adjustments to these activities will be made on an ongoing basis as needed.

Protectiveness Statement

The remedy at OU1 is expected to be protective of human health and the environment upon completion, and in the interim, exposure pathways that could result in unacceptable risks are being controlled.

The remedy at OU2 is expected to be protective of human health and the environment upon completion, and in the interim, exposure pathways that could result in unacceptable risks are being controlled.

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I. Introduction

The purpose of the five-year review is to determine whether the remedies at a site are protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in Five-Year Review Reports. In addition, Five-Year Review Reports identify issues found during the review, if any, and identify recommendations to address them.

This review was conducted pursuant to Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. Section 9601, et seq., and 40 C.F.R. 300.430(f)(4)(ii) and in accordance with the Comprehensive Five-Year Review Guidance, OSWER Directive 9355.7-03B-P (June 2001).

The U.S. Environmental Protection Agency (EPA), Region 2, conducted this five-year review of the remedies being implemented at the CDE site in South Plainfield, New Jersey (See Figure 1). This five-year review was conducted by Diego Garcia, Remedial Project Manager (RPM). This report documents the results of the review.

This is the first five-year review for the CDE site. The triggering action for this statutory review was the start of on-site construction for the OU2 remedial action in November 2006. A five-year review is required since, consistent with the expectations of the OU2 selected remedy, hazardous substances, pollutants, or contaminants will remain at the OU2 portion of the CDE site above levels that allow for unlimited use and unrestricted exposure. A review of the OU1 remedy will also be addressed in this document because the remedy is under construction and hazardous substances, pollutants, or contaminants remain above levels that allow for unlimited use and unrestricted exposure. Once this remedy is completed, and these contaminants are removed, a five-year review will no longer be required for the OU1 remedy.

The CDE site is being addressed in four OUs. In September 2003, EPA issued a ROD selecting a remedy for OU1, which addresses contaminated soil on properties adjacent to the site. In September 2004, EPA issued a ROD for OU2 which addresses on-site contaminated soil. EPA is also completing an RI/FS for OU3, which addresses groundwater, and OU4, which addresses the surface water and sediments of the Bound Brook, a stream that runs adjacent to the CDE site that has been adversely affected by the site. The OU1 and OU2 remedies are currently being implemented. An OU3 remedy is planned for 2012, and an OU4 remedy is expected in 2013. This five-year review assessed the OU1 and OU2 remedies that are under construction.

II. Site Chronology

Table 1 summarizes site-related events.

III. Background

Physical Characteristics

The CDE site is located at 333 Hamilton Boulevard, South Plainfield, Middlesex County, New Jersey (See figure 1). The former CDE facility, now known as the Hamilton Industrial Park, consists of approximately 26 acres which contained 18 buildings that were used by a variety of commercial and industrial tenants. The fenced 26-acre facility is bounded on the northeast by the Bound Brook and the former Lehigh Valley Railroad, Perth Amboy Branch (now Conrail); on the southeast by the Bound Brook and a property used by the South Plainfield Department of Public Works; on the southwest, across Spicer Avenue, by single-family residential properties; and to the northwest, across Hamilton Boulevard, by mixed residential and commercial properties.

Based on the characteristic surface features of the facility property, the site can be subdivided into two major areas. The northwestern portion of the Hamilton Industrial Park was largely paved or occupied by buildings. The area contained 18 buildings constructed of wood frame or brick (These buildings were removed). Several of the buildings were subdivided. The buildings were used by a variety of commercial and industrial tenants. The southeast area of the property is primarily an open field, with some wooded areas. The property drops steeply to the southeast, and the eastern portion of the property consists of wetlands bordering the Bound Brook (See Figure 2).

Geology

The property is underlain by the Passaic formation (identified in the OU2 ROD as the Brunswick Formation, but recently renamed), a fractured bedrock geologic formation, topped with a layer of overburden that is a mixture of glacial deposits and man-made fill. The Passaic formation in the area of the site is comprised of interbedded siltstone and mudstone, which is fractured. Groundwater flow is primarily along the fractures. The pore space in the siltstone and mudstone is very large compared with the fractures in those formations, and thus the pore space stores much more water than the fractures. The pore space is very fine, impeding movement of groundwater, so the transfer of water between the pore space and the fractures is very slow. The overburden is in the northwest corner of the property with increasing thickness towards the Bound Brook, to a maximum depth of about 15 feet. A weathered siltstone unit, approximately one to eight feet thick above the bedrock surface, extends beneath most of the property. It appears that much of the southeastern portion of the property was leveled by the addition of fill material, and that site wastes were also deposited in this fill. Fill material identified throughout the former CDE facility during the remedial investigation and remedial action consists primarily of cinders, ash, brick, glass, metal, slag, and wood fragments. In some areas the fill material was six feet thick.

Hydrogeology

Groundwater monitoring wells were installed at the CDE site property at depths ranging from 32 feet to 62 feet, with groundwater found at approximately 35 feet below ground surface (bgs), in the bedrock unit. Based on the investigations conducted to date, groundwater flow is to the northwest. Sampling results revealed that groundwater at the CDE site is highly contaminated with volatile organic compounds (VOCs) and, locally, polychlorinated biphenyls (PCBs), with PCBs likely present as a result of high VOC content and co-solvency effects. Concentrations of trichloroethylene (TCE) as high as 120,000 parts per billion (120,000 ppb), and PCBs as high as 84 ppb, were measured in groundwater samples.

Water encountered in the overburden soil and weathered bedrock intervals during the OU2 RI were sampled to characterize potential source areas, to evaluate potential zones of contamination, and to identify potential contamination migration pathways. PCBs, PCB congeners, VOCs, semi-volatile organic compounds (SVOCs), pesticides, and metals were detected at elevated concentrations in perched water sampled during the excavation of test pits and the installation of on-site groundwater monitoring wells. Further investigations to determine the extent of the groundwater contamination are ongoing as part of the OU3 RI and will be the focus of future reports.

Soils at the industrial park contaminated with PCBs and VOCs were identified by EPA in the OU2 ROD to be an ongoing source of groundwater contamination. Metals found at elevated levels in site soils were not found in the groundwater and, therefore, the presence of metals contamination in site soils does not appear to be a continuing groundwater threat.

Land and Resource Use

Site Uses: Currently, the Hamilton Industrial Park is zoned for commercial/industrial use. Based upon discussions with the Borough of South Plainfield, EPA does not expect the zoning of this property to change in the near future. In December 2001, the Borough of South Plainfield adopted a resolution designating the Hamilton Industrial Park (OU2) and certain properties in the vicinity of the industrial park as a redevelopment area pursuant to the New Jersey Local Redevelopment and Housing Law. South Plainfield retained a planning consultant to prepare a redevelopment plan for the designated area, and on July 15, 2002, the Borough of South Plainfield approved the redevelopment plan. The redevelopment plan does not require re-zoning of the industrial park.

Resource Uses: The industrial park consists of approximately 26 acres. A portion of this area is federally-designated wetlands. EPA used the 500-year flood line as a natural boundary to determine the extent of soil remediation to be addressed by OU2. Approximately six of the facility's 26 acres are within the 500-year floodplain; the remaining 20 acres are being addressed in OU2. Low-lying wetlands will be addressed as part of the OU4 remedy that addresses the

Bound Brook sediments and adjacent wetlands areas. Groundwater in the area is both a current and potential future source of drinking water. The groundwater beneath the facility property is classified by the New Jersey Department of Environmental Protection (NJDEP) as Class IIA, a potential source of drinking water, and potable water wells for the Middlesex Water Company and the Elizabethtown Water Company facility are located within four miles of the site. EPA is currently evaluating the potential for the CDE site to adversely affect the area groundwater, which will be addressed in the OU3 remedy.

History of Contamination

Prior to 1936, Spicer Manufacturing Corporation (Spicer), a predecessor to Dana Corporation, owned and operated the CDE facility, and many of the former buildings date from this era. Spicer ceased operations in South Plainfield in 1929 and, beginning in 1936, leased the property to CDE. CDE operated at the facility from 1936 to 1962, manufacturing electronic components including, in particular, capacitors. CDE eventually purchased the property from Spicer. PCBs and chlorinated organic solvents were used in the manufacturing process, and the company disposed of PCB-contaminated materials and other hazardous substances directly on the facility soils. CDE's activities evidently led to widespread chemical contamination at the facility, as well as migration of contaminants to areas nearby the facility. PCBs have been detected in the groundwater, soils and in the former building interiors at the industrial park, at adjacent residential, commercial, and municipal properties, and in the surface water and sediments of the Bound Brook. High levels of VOCs have been found in the facility soils and in groundwater. In the 1960s, D.S.C. of Newark Enterprises, Inc. (DSC) purchased the property from CDE. After CDE's departure from the facility in 1962, it was operated as a rental property, the Hamilton Industrial Park, with over 100 commercial and industrial companies operating at the CDE facility as tenants. Some of these tenants may have contributed to the site contamination, but the PCB and VOC contamination appears to be primarily attributable to CDE's operation.

Initial Response

In 1996, NJDEP conducted a site inspection and collected surface soil, surface water, and sediment samples at the CDE facility property. In June 1996, at the request of NJDEP, EPA collected and analyzed additional soil, surface water and sediments at the CDE facility. The results of the sample analyses revealed that elevated levels of PCBs, VOCs, and inorganics were present at the CDE site.

As a result of the contamination found at the facility, in March 1997, EPA ordered the owner of the property, DSC, a potentially responsible party (PRP), to perform a removal action to mitigate risks associated with contaminated soil and surface water runoff from the facility. The removal action included paving driveways and parking areas in the industrial park, installing a security fence, and implementing drainage controls.

In 1997, EPA conducted a preliminary investigation of the Bound Brook to evaluate the potential impacts of contamination on human health and the environment. Elevated levels of PCBs were found in fish and sediments of the Bound Brook. As a result of these investigations, NJDEP issued a fish consumption advisory for the Bound Brook and its tributaries, including nearby New Market Pond and Spring Lake.

In 1997, EPA began collecting surface soil and interior dust samples from residential and commercial properties near the CDE facility. The results of the sampling revealed PCBs in soil and interior dust that posed a potential health concern for residents of several of the properties tested. These investigations led to removal actions at 15 residential properties, conducted from 1998 to 2000. In July 1998, EPA included the CDE site on the National Priorities List (NPL).

In 2000, EPA initiated the OU1 RI for the CDE site and began collecting soil samples from properties further from the CDE facility. This sampling revealed additional properties with PCBs in soil at unacceptable levels, and indicated a need for more extensive sampling. EPA compiled the 1997 and 1998 removal sampling data with its remedial investigation data in a RI for OU1, and in June 2003, proposed a comprehensive remedy for OU1, the contaminated properties in the vicinity of the former CDE facility.

A separate RI/FS is currently underway for both OU3 and OU4. The OU2 remedy (discussed below) identified VOCs in soil considered a continuing source of contamination to the groundwater; the OU3 investigations are investigating off-site groundwater contamination from the site in the Passaic (bedrock) formation. The OU4 RI/FS is testing surface water and sediments in approximately eight miles of the Bound Brook both above and below the CDE site, including tributaries and flood plains.

While PCBs are the primary soil contaminant, VOCs have been detected in shallow on-site groundwater, including TCE and tetrachloroethylene (PCE) at levels of 170,000 ppb, and 1,600 ppb respectively. While groundwater is being addressed in OU3, and sampling is still underway for the remedial investigation, soil vapor intrusion is evaluated when soils and/or groundwater are known or suspected to contain VOCs. Twenty-five residences were sampled for sub-slab soil gas. Of these residences, selected for testing from the zone of documented groundwater contamination, two were selected for further indoor air investigation based on the subslab results. One property showed an indoor air PCE concentration of 3 micrograms per cubic meter ($3 \mu\text{g}/\text{m}^3$), which exceeds EPA's current indoor screening level.

There is a strong indication that the PCE concentrations are not site-related, and this property has been referred to NJDEP for further action. Based upon these results, there is minimal concern for vapor intrusion at nearby properties, but further investigation is recommended at the property with elevated indoor air levels. Furthermore, groundwater will continue to be monitored in OU3 in order to determine if the vapor intrusion pathway continues to be incomplete at the site.

Basis for Taking Action

Contaminants

Hazardous substances that have been released at the site include:

1,1-Dichloroethylene	2,3,7,8-TCDD
Benzene	4,4'- DDE
Tetrachloroethylene	4,4'- DDT
Trichloroethylene	alpha-BHC
Vinyl chloride	Aldrin
Benzo(a)anthracene	Dieldrin
Benzo(a)pyrene	gamma-Chlordane
Benzo(b)fluoranthene	Heptachlor
Benzo(k)fluoranthene	Heptachlor epoxide
Chrysene	PCBs
Dibenz(a,h)anthracene	Arsenic
Indeno(1,2,3-cd)pyrene	

Exposures to soil and indoor dust through ingestion and dermal contact with these media, and inhalation of dust in OU2 buildings were found to be associated with significant human health risks, due to exceedances of EPA's risk management criteria for either the average or the reasonable maximum exposure scenarios. The carcinogenic risks were highest for exposures due to the high concentrations of PCBs.

Please note that for the OU1 properties, only PCBs are considered contaminants of concern. At the OU1 properties, indoor dust appears to be attributable to PCB-contaminated soils that have been carried indoors.

Exposure to groundwater will be assessed as part of OU3, and exposure to Bound Brook sediments and surface water will be assessed as part of OU4. The OU2 ROD concluded that the former CDE facility was a continuing source of VOC contamination and, to a lesser degree, PCB contamination to the groundwater, and that the site was a past and potential future source of PCB contamination to the Bound Brook.

IV. Remedial Actions

Remedy Selection and Implementation

OU1 – The OU1 ROD was issued in September 2003. The Remedial Action Objectives (RAOs) of this remedy are to:

- Reduce or eliminate the direct contact threat associated with contaminated soil and indoor dust to levels protective of current land use and considering the future residential use; and
- Prevent exposure and minimize disturbance to the surrounding community of South Plainfield, during implementation of the remedial action.

The major components of the OU1 selected remedy include:

- Excavation of an estimated 2,100 cubic yards of contaminated soil which exceed the remediation goal of 1 part per million (1 ppm) of PCBs, from approximately 16 properties, backfilling with clean fill, and property restoration as necessary;
- Transportation of the contaminated soil off-site for disposal, with treatment as necessary;
- Indoor dust remediation where PCB-contaminated dust is encountered exceeding the remediation goal of 1 ppm of PCBs; and
- Where necessary, temporary relocation of residents during the indoor remediation.

Beginning in 1998, EPA-directed removal actions addressed PCB soil contamination at 13 properties and contaminated dust from 15 properties near the facility. The purpose of the OU1 remedy was to systematically complete the assessment of the neighboring community started by EPA's removal program, and identify additional cleanups that may be required. The OU1 ROD identified four additional properties that required soil cleanups, and identified areas where additional investigations, and possible cleanups, were also needed (estimating that 12 additional properties would be identified, resulting in the ROD estimate of 16 properties). Soil remediation on the four off-site properties designated in the OU1 ROD began in November 2005 and was fully complete in April 2007. Over 2,300 tons of contaminated soil were excavated from those properties.

The further property testing required by the OU1 ROD began in 2008. EPA began sampling additional off-site properties, and has identified, as of the date of this review, eight additional properties exceeding the ROD cleanup criteria that require either surface soil removal or interior dust cleaning. Several of the interior dust cleanups were performed in 2010, and the remaining soil and interior dust work is planned for 2012.

EPA is still investigating additional residential properties, but expects to complete these investigations in 2012. As part of that effort, EPA plans to revisit several of the original properties addressed by the removal program, as a quality assurance review of the original cleanup effort and of EPA's dust control efforts associated with OU2 (discussed below).

OU2 - The September 2004 ROD for OU2 identified the following RAOs for contaminated soils and buildings at the former CDE facility:

- Reduce or eliminate exposure to contaminated soils and building material to levels that are protective of commercial or industrial use, and protective of the environment;
- Prevent/minimize migration of contamination to the Bound Brook from surface soils; and
- Reduce or eliminate the migration of site contaminants from soil and debris to the groundwater.

The major components of the selected remedy include:

Soils

- Excavation of an estimated 107,000 cubic yards of contaminated soil containing polychlorinated biphenyls at concentrations greater than 500 ppm and contaminated soils that exceed New Jersey's Impact to Groundwater Soil Cleanup Criteria for contaminants other than PCBs;

- On-site treatment of excavated soil amenable to treatment by low temperature thermal desorption (LTTD), followed by backfilling of excavated areas with treated soils;
- Transportation of contaminated soil and debris not suitable for on-site LTTD treatment to an off-site facility for disposal, with treatment as necessary;
- Excavation of an estimated 7,500 cubic yards of contaminated soil and debris from the capacitor disposal areas and transportation for off-site disposal, with treatment as necessary;
- Installation of a multi-layer cap or hardscape;
- Installation of engineering controls;
- Property restoration; and
- Implementation of institutional controls.

Buildings

- Demolition of the 18 on-site buildings;
- Transportation of the building debris off-site for disposal, with treatment as necessary; and
- Relocation of eligible tenants at the former CDE facility buildings pursuant to the Uniform Relocation Act, as necessary.

Relocation of the facility tenants and demolition of on-site buildings occurred from November 2006 to May 2008. Excavation of contaminated soil began in February 2008 and is still ongoing. To date, approximately 220,000 tons of contaminated soil have been excavated, with 98,000 tons treated by the on-site LTTD and placed back on-site, with the remaining soils disposed of off-site. As of the date of this review, an estimated 15,000 tons of soil remain to be excavated and disposed of off-site. A surface water collection system is also being installed. Once the excavated areas are backfilled and the surface water collection system is in place, a multi-layer cap or hardscape will be placed over the entire CDE site. EPA expects that the OU2 remedy will be completed in Spring 2012.

V. Progress Since the Last Review

Not Applicable – This is the first five-year review.

VI. Five-Year Review Process

Administrative Components

This is the first five-year review for the CDE site. For this five-year review, the review team consisted of Diego Garcia, EPA Region 2 RPM; Diana Cutt, EPA Region 2 Hydrogeologist; Rebecca Ofrane, EPA Region 2 Human Health Risk Assessor; Mindy Pensak, EPA Region 2 Ecological Risk Assessor; and Carlton Bergman, NJDEP Site Manager.

Community Involvement

EPA published a notice in the South Plainfield Observer, a local newspaper, on November 18, 2011, notifying the community of the five-year review process. The notice indicated that EPA was in the process of conducting a five-year review of the remedies for the site to ensure that the implemented remedies remain protective of public health and the environment and are

functioning as designed. It also indicated that upon completion of the five-year review, results of the review would be made available at the designated site repositories. In addition, the notice included the RPM's address and telephone number for questions related to the five-year review process or the CDE site. The EPA RPM was not called by any members of the community regarding this five-year review.

EPA has made all site-related documents available to the public in the administrative record repositories maintained at the EPA Region 2 office (290 Broadway, New York, New York 10007), and South Plainfield Public Library, 2484 Plainfield Avenue, South Plainfield, New Jersey.

Document Review

This five-year review consisted of a review of relevant documents including monitoring data (See Attachment B for a list of documents reviewed).

Data Review

At this time, the OU1 and OU2 remedies are not completed. For the OU1 properties that have been completed, EPA prepared remedial designs defining the scope of the required cleanups, and then collected post-remediation sampling to demonstrate that the remediation goals have been achieved at each property. These results are reported in the Remedial Action Report for OU1 (August 2009). The only new data associated with the OU2 remedy that can be used to assess ongoing remedy protectiveness during implementation is the air monitoring data that has been collected since the start of construction. A discussion of the air monitoring data can be found in the response to Question A in Section VII below.

Site Inspection

An inspection of the CDE site was conducted on September 28, 2011. The following parties were in attendance: Diego Garcia, EPA Region 2 RPM; Diana Cutt, EPA Region 2 Hydrogeologist; Rebecca Ofrane, EPA Region 2 Human Health Risk Assessor; Mindy Pensak, EPA Region 2 Ecological Risk Assessor; John Osolin, EPA Region 2 RPM; Mark Austin, EPA Region 2 RPM; Pat Seppi, EPA Region 2 Community Involvement Coordinator; and Carlton Bergman, NJDEP Site Manager.

During the site inspection, no OU1 work (remedial design or remedial action) was in progress. Since the cleanups are completed at some of the properties, and each allow for unrestricted use, as documented in the Remedial Action Report, there was nothing to inspect. EPA has plans to address several more properties before the OU1 work is completed.

The OU2 site inspection consisted of an inspection of the entire site property while remediation was underway, and included the load-out area, current excavation, security fencing, on-site drainage and capping systems and, surrounding off-site areas.

The following sections present the results of the OU2 site inspection, separated into each inspected element.

Excavation Areas – most of the excavation is complete and backfilled to levels specified in the remedial design. The backfill is being tested to ensure it meets design specifications. Silt fencing has been placed to ensure runoff from the site does not cause off-site exposures. Air monitoring is being done to ensure that airborne contaminants are not leaving the site during the excavation activities.

Security Fencing - Upon inspection, the site fencing for OU2 appeared to be undamaged and in working order. Since the work is ongoing, there is a continuous presence at the site and any damage is repaired immediately upon discovery.

Surrounding Areas - Nothing out of the ordinary was noted. No areas of runoff from the site appear to have impacted off-site areas. No new construction on neighboring properties or other factors that might change exposure scenarios were identified.

Capping and On-site Drainage System - The drainage system and cap is under construction and will be completed early next year.

Interviews

No interviews were conducted.

VII. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

Both the OU1 and the OU2 remedies are still under construction. The OU1 remedy includes excavation, transport and disposal of PCB-contaminated soils from residences, commercial, and municipal properties near the CDE site, with indoor dust remediation and temporary relocation when necessary. Once fully implemented, the remedy will remove contaminated soil and interior dust to a level that allows unrestricted use of the properties. Properties are being sampled and remediated on a tiered basis, where PCB concentrations in soils or dusts exceed the remediation goal of 1 ppm. Post-remediation data are being collected as well. The ongoing work ensures that the surrounding properties have a reduced or eliminated direct contact threat associated with contaminated soil and indoor dust. The OU1 remedy, implemented as planned, is expected to function as intended by the ROD.

The OU2 remedy consists of relocation of tenants and demolition of all on-site buildings (completed in May 2008), excavation for off-site disposal of the capacitor disposal area (completed June 2009), and excavation of soil containing PCBs at concentrations over 500 ppm and contaminated soils that exceed New Jersey's Impact to Groundwater Soil Cleanup Criteria for non-PCB contaminants; on-site treatment of excavated soils with LTDD and backfilling of treated soil; transportation of contaminated soil and debris not suitable for treatment for off-site disposal; installation of a cap or hardscape; installation of engineering controls; property restoration; and implementation of institutional controls. The OU2 remedy is scheduled for completion in Spring 2012. During construction, the CDE site has been fenced to secure the construction area, and security is present when construction activities are not underway.

Throughout the OU2 remedial action, beginning with the building demolition in 2007, best engineering practices (including air monitoring, dust control and erosion control) have been used to ensure the safety of the surrounding community during construction. The only reportable events took place during the most recent phase, the on-site LTTD of PCB-contaminated soil, when exceedances of the 24-hour perimeter particulate monitor action level of $65 \mu\text{g}/\text{m}^3$ occurred during the initial startup phase of the LTTD unit. The monitors measure cumulative particulate emissions (dust), and on two successive days in January 2010, a release of steam and entrained dust from the LTTD post-treatment process enveloped one air sampling station downwind of the plant. The exposed monitor correctly measured the two events as exceedances of the dust threshold, albeit from an identified event involving already-treated soils. Elevated readings for the subsequent two sampling days also exceeded the 24-hour action limit; however, these two incidents were attributed to instrument failure, as exposure to the steam had left behind a residue that covered the laser optics in the instrument. Concurrent dust monitoring with a portable instrument revealed no elevated readings, and cleaning the equipment allowed for proper calibration and no more false positive results. No other similar incidents have occurred during the implementation of the OU2 remedy.

A deed notice, a type of land use control that will assure the maintenance of the cap and thus mitigate the potential for exposure to contaminated soil left on site over the long term, is being developed and will be implemented once the remedial work is complete.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?

There have been no physical changes to the CDE site that would adversely affect the protectiveness of the remedy. Land use assumptions, exposure assumptions and pathways, cleanup levels and remedial action objectives considered in the decision documents remain valid. In OU1, the contaminant of concern (COC) was PCBs, and a cleanup level of 1 ppm was selected based on EPA's "Guidance on Remedial Actions at Superfund Sites with PCB Contamination." This cleanup level remains valid since EPA assesses the human health risk at each property individually, using site-specific data. Once fully implemented, cleanup of the properties is expected to allow for unrestricted residential land use. OU2 COCs include PCBs, dioxins, furans, VOCs, SVOCs, pesticides, polycyclic aromatic hydrocarbons (PAHs) and metals. The site is zoned for commercial/industrial use, and is expected to remain so.

Ecological risk assessments were performed on the off-site properties as well as the CDE facility area. Excess risks were found only on the undeveloped portion of the industrial park, based on possible ecological receptors and a supportive habitat. Further ecological investigation will be conducted as part of the Bound Brook operable unit.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No.

Technical Assessment Summary

According to the documents reviewed, and the site inspection, both the OU1 and OU2 remedies are functioning as intended by the decision documents to the extent that they are completed.

Based on a review of both remedies compared with current risk guidance, EPA believes that the remedies chosen in the Records of Decision are still protective of human health and the environment.

VIII. Issues, Recommendations and Follow-up Actions

Issue	Recommendations & Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
A deed notice for continued use of the property as non-residential (commercial/light industrial), identified in the OU2 ROD, has yet to be implemented and is under development.	The deed notice will be placed on the site after completion of the OU2 remedy.	EPA/ property owner	EPA	November 2016	N	Y

IX. Protectiveness Statement

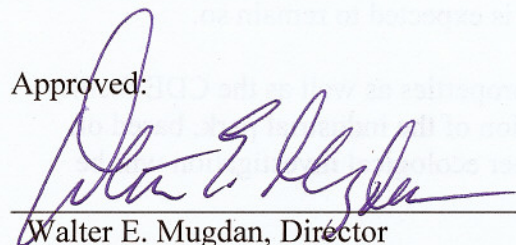
The remedy at OU1 is expected to be protective of human health and the environment upon completion, and in the interim, exposure pathways that could result in unacceptable risks are being controlled.

The remedy at OU2 is expected to be protective of human health and the environment upon completion, and in the interim, exposure pathways that could result in unacceptable risks are being controlled.

X. Next Review

The next five-year review for the Cornell-Dubilier Electronics Superfund site should be completed by November 2017.

Approved:



Walter E. Mugdan, Director
Emergency and Remedial Response Division

Nov. 28, 2011

Date

APPENDIX A - List of Acronyms

ACO	Administrative Consent Order
ARARs	Applicable or Relevant and Appropriate Requirements
CDE	Cornell-Dubilier Electronics
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COC	Contaminant of Concern
EPA	(United States) Environmental Protection Agency
FS	Feasibility Study
GWQS	Groundwater Quality Standard
IRIS	Integrated Risk Information System
LTM	Long-Term Monitoring
MCL	Maximum Contaminant Level
NJDEP	New Jersey Department of Environmental Protection
NJGWQS	New Jersey Groundwater Quality Standard
NPL	National Priorities list
O&M	Operation & Maintenance
OU	Operable Unit
OU1	Operable Unit One
OU2	Operable Unit Two
OU3	Operable Unit Three
OU4	Operable Unit Four
PCE	Tetrachloroethylene
ppb	Parts Per Billion
ppm	Parts Per Million
PRGs	Preliminary Remediation Goals
PRP	Potentially Responsible Party
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RAO	Remedial Action Objective
RD	Remedial Design
RD/RA	Remedial Design/Remedial Action
RI	Remedial Investigation
ROD	Record of Decision
SVOC	Semi-volatile Organic Compound
TCE	Trichloroethylene
USACE	United States Army Corps of Engineers
VOCs	Volatile Organic Compounds

APPENDIX B - Documents Reviewed

- U.S. Environmental Protection Agency, “*Record of Decision, Operable Unit One, Cornell-Dubilier Electronics site, South Plainfield, Middlesex County, New Jersey*” Region 2, New York, New York, September 2003.
- U.S. Environmental Protection Agency, “*Record of Decision, Operable Unit Two, Cornell-Dubilier Electronics site, South Plainfield, Middlesex County, New Jersey*” Region 2, New York, New York, September 2004.
- U.S. Army Corp. of Engineers, *Final Data Characterization, Report for OU1 Soil and Interior Dust Sampling, Operable Unit 01, Cornell-Dubilier Electronics Superfund Site,* January 2009
- U.S. Environmental Protection Agency, “*Pollution Report, Cornell-Dubilier Electronics site, South Plainfield, Middlesex County, New Jersey*” February 4, 2009.
- U.S. Army Corp. of Engineers, “*Remedial Action Report: Cornell-Dubilier Electronics Superfund Site, Operable Unit -1 ,[residence addresses removed], South Plainfield, New Jersey,* August 2009.
- U.S. Army Corp. of Engineers, “*Remedial Action Completion Report for OU2 Buildings Demolition, Clusters 1-12, Cornell-Dubilier Electronics Superfund Site, South Plainfield, New Jersey,*” August 2009.
- U.S. Army Corp. of Engineers, “*Remedial Action Completion Report for OU2 Capacitor Disposal Area Cluster 13, Cornell Dubilier Electronics Superfund Site, South Plainfield, New Jersey*” August 2010.

TABLES

Table 1

Chronology of Site Events	
Event/Activity	Date
Spicer Manufacturing Corp., a predecessor to Dana Corporation, owned and operated the facility. Operations ceased in 1929.	Prior to 1936
CDE leased and operated the facility, manufacturing electronic components including, in particular, capacitors.	1936 to 1962
After CDE's departure from the facility it has been operated as a rental property, with over 100 commercial and industrial companies operating at the facility as tenants.	After 1962
NJDEP conducted a Site Inspection and collected surface soil, surface water, and sediment samples at the facility property.	1996
At the request of NJDEP, EPA collected and analyzed additional soil, surface water and sediments at the facility. The results of the sample analyses revealed that elevated levels of PCBs, VOCs, and inorganics were present at the site.	June 1996
EPA ordered the owner of the facility property, D.S.C. of Newark Enterprises, Inc. (DSC) to perform a removal action to mitigate risks associated with contaminated soil and surface water runoff from the facility. The removal action included paving driveways and parking areas in the industrial park, installing a security fence, and implementing drainage controls.	March 1997
EPA conducted a preliminary investigation of the Bound Brook to evaluate the potential impacts of contamination on human health and the environment.	1997
EPA began collecting surface soil and interior dust samples from residential and commercial properties near the CDE facility.	June 1997
EPA performs removal actions at 7 residential properties to address PCBs in interior dust.	March 1998
EPA included the site on the NPL.	July 1998
Potentially responsible parties perform removal actions at 5 residential properties to address soil contamination under an order with EPA.	August 1998
Potentially responsible parties perform removal actions at 7 residential properties to address soil contamination under an order with EPA.	February 1999
EPA performs removal actions at 8 residential properties to address PCBs in interior dust.	January 2000
EPA performs a removal action at a residential property to address soil contamination after PRP failed to perform the action under order with EPA.	April 2000
EPA initiated the Remedial Investigation for the site and began collecting soil samples from properties further from the CDE	June 2000

facility.	
The South Plainfield Borough Council adopted a resolution designating the Hamilton Industrial Park and certain lands in the vicinity of the industrial park as a "Redevelopment Area" pursuant to New Jersey Local Redevelopment and Housing Law.	December 6, 2001
The Borough Council approved an ordinance adopting the redevelopment plan. Subsequently, the Borough designated a developer for the redevelopment plan.	July 15, 2002
EPA's Proposed Plan outlines a comprehensive remedy for OU1.	June 2003
EPA signs a Record of Decision selecting a remedy to address the contaminated soil at properties in the vicinity of the former CDE facility (OU1).	September 2003
EPA signs a Record of Decision selecting a remedy to address the contaminated soil on former CDE facility (OU2).	September 2004
CAPE Environmental Management, Inc. (CAPE), under contract to the U.S. Army Corps of Engineers conducted a remedial action to remove contaminated soil from 3 off-site properties.	November 2005
EPA began implementing the OU2 ROD with the relocation of facility tenants at the industrial park and began demolition of the 18 buildings.	November 2006
CAPE under contract to the U.S. Army Corps of Engineers conducted a remedial action to remove contaminated soil from 1 off-site property.	April 2007
Sevenson Environmental Services (SES) under contract to the U.S. Army Corps of Engineers completes building demolition component of OU2 remedy.	May 2008
Eight deep bedrock wells were installed by EPA to assess the hydraulic properties of the fractured bedrock and water quality of the bedrock groundwater up- and down-gradient of the former CDE facility. Groundwater samples were collected for VOCs from multiple depths and also were taken from 12 existing shallow bedrock monitoring wells located at the former CDE facility. Initial testing indicated the presence of chlorinated VOCs in 11 of the 12 shallow bedrock wells.	January 2008
SES under contract to the U.S. Army Corps of Engineers initiates excavation of capacitor disposal area component of OU2 remedy.	February 2008
A Final RI/FS Work Plan for OU3 and Final Site-Wide Site Safety and Health Plan for all operable units were submitted to EPA.	October 2008
Rock core sampling performed and analyses to assess the presence of VOCs and PCBs in the rock matrix.	January 2009
The Final Inspection for the excavation of the capacitor disposal area was completed.	June 2009
Tests to assess hydraulic properties of fractured bedrock zones and completed borehole geophysics completed for OU3 RI.	May 2009
Installed multi-port monitoring wells to record hydraulic heads and to obtain groundwater samples from fractured bedrock zones.	September 2009
Performed the first sampling event for OU3 RI, recording water	October 2009

levels and collected groundwater samples from all monitoring wells.	
SES under contract to the U.S. Army Corps of Engineers initiates treatment of PCB-contaminated soil with LTTD, a component of the OU2 remedy.	November 2009
Performed the second sampling event, recording water levels and collecting groundwater samples from all monitoring wells, plus select wells for PCB congeners, dioxins, and furans.	March 2010
Completed integrated pumping test to assess aquifer properties.	June 2010
Performed the third sampling event for OU3 RI.	July 2010
Installed and sampled final monitoring well MW-23.	September 2010
LTTD treatment operations complete for OU2 remedy.	February 2011
Conducted second sampling event on MW-23.	March 2011

FIGURES

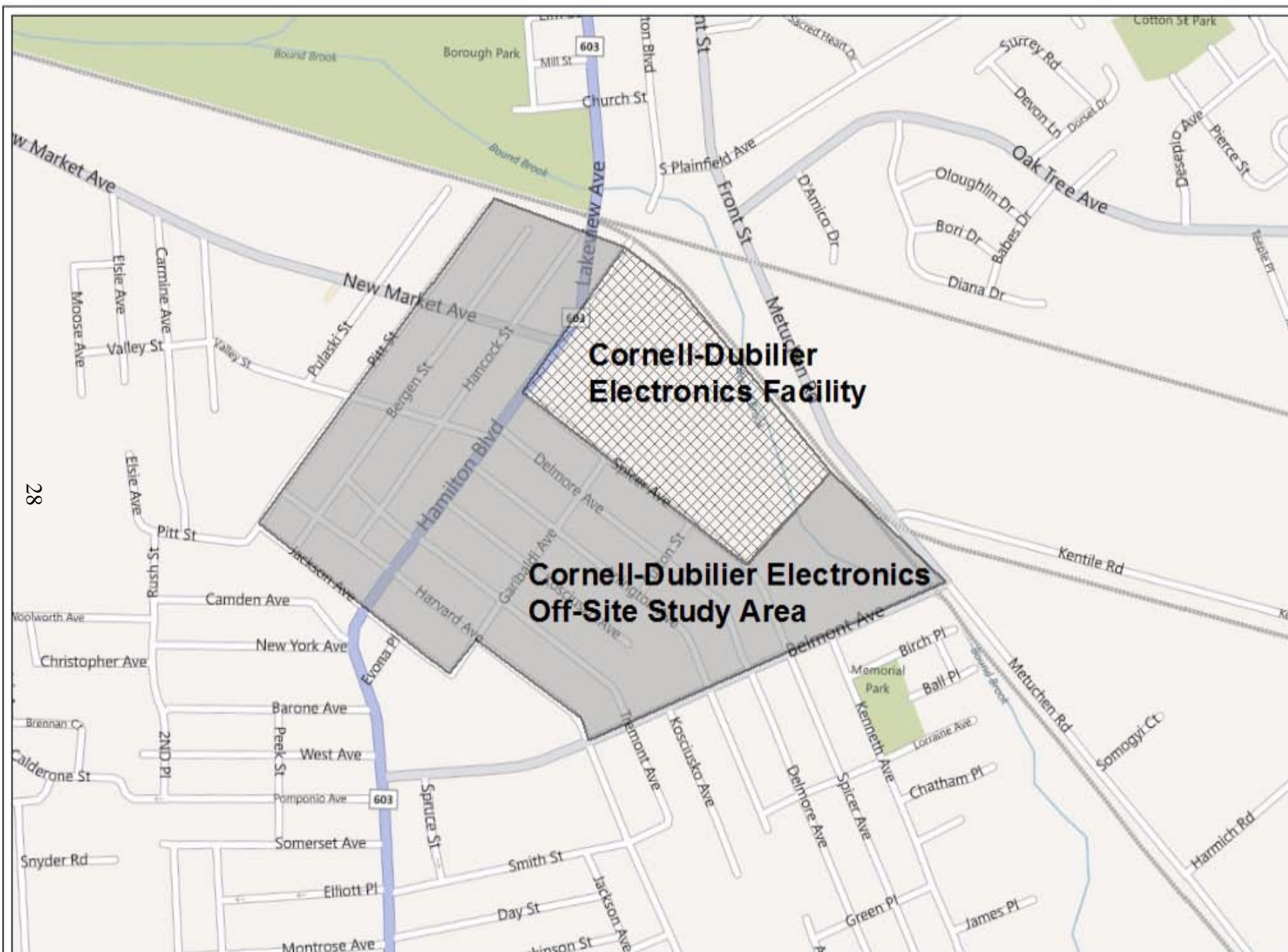


SOURCE: USGS QUADRANGLE, PLAINFIELD, N.J.

12,000 0 24,000
Feet

SCALE: 1" = 24,000'

Site Location - Figure 1



Cornell-Dubilier Electronics Superfund Site

Figure 2